

Notice of Allowability

Applicati n No.

09/926,654

Applicant(s)

MERCIEL, JOEL

Examiner

Zia R. Hashmi

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/26/03.
2. ☒ The allowed claim(s) is/are 1-29 and 37-45.
3. ☒ The drawings filed on 26 August 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: ____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No. ____.
- (b) ☐ including changes required by the proposed drawing correction filed ____, which has been approved by the Examiner.
- (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- 1 ☒ Notice of References Cited (PTO-892)
- 3 ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 5 ☐ Information Disclosure Statements (PTO-1449), Paper No. ____.
- 7 ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- 2 ☐ Notice of Informal Patent Application (PTO-152)
- 4 ☐ Interview Summary (PTO-413), Paper No. ____.
- 6 ☐ Examiner's Amendment/Comment
- 8 ☒ Examiner's Statement of Reasons for Allowance
- 9 ☐ Other

DETAILED ACTION

Allowable Subject Matter

1. In response to Office Action of February 27, 2003, an "Amendment" was received August 26, 2003. Independent claims 1 and 4, specification and drawings have been amended, as indicated. Claims 30-36 have been cancelled, and new claims 44-45 have been added.

2. Claims 1-29 and 37-45 are allowed.

3. The following is an examiner's statement of reasons for allowance:

With respect to independent claims 1, 4, 44, and 45, prior art fails to disclose a method and apparatus for generating ions in a gaseous medium comprising at least one needle with a shank and an emitter end, a sheath of composite material made of glass fiber reinforced unsaturated polyester surrounding the shank of each needle with resistivity of 10^4 to 10^{12} ohms, each needle being made of material selected from the group consisting of titanium, platinum, and a compound of titanium and platinum, and means for applying a voltage between two portions of the shank of each needle.

In the prior art, ion generation devices have certain drawbacks, particularly of ensuring long term and consistent production of ions and their inability to cause a negative flux of ions to circulate or diffuse constantly at the site or in the enclosure to be treated. Furthermore, ion generators of prior art operated at 6-12 kV, have rather low efficiency in producing ions after they have been in use for a while, particularly in

production of oxygen ions. Those operating above 6 kV are dangerous because of the toxicity of peroxides substance they produce, such as ozone and nitrogen oxides, not to speak of high voltage danger they present. Also, the known devices comprise of only a few needles.

The present invention produces ions in an atmospheric or gaseous medium, has several aspects to make the apparatus reliable and sturdy, with the components described above. In another aspect, the invention also provides a circuit for regulating the voltage (less than 4.5 kV) of the ionizing apparatus, thus making it possible to control ion diffusion. In a particular embodiment, the voltage regulator means allows measurement of the quantity of ions produced and comparing it with an ideal quantity desired, by means of varying applied voltage. Thus, a user can regulate the operation of the ionizer as a function of its environment, e.g. of human occupation and/or of furnishings and/of wall coverage in the premises, etc. The invention also incorporates means of measuring ions in given environment and adjusting ion production to desired levels.

Conclusion

4. Akama discloses (5,509,843) a method and apparatus for manufacturing needle shaped materials for use as microemitters.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zia Hashmi whose telephone number is (703) 305-0419. The examiner can normally be reached between 8.30 AM- 5 PM. If attempts to reach

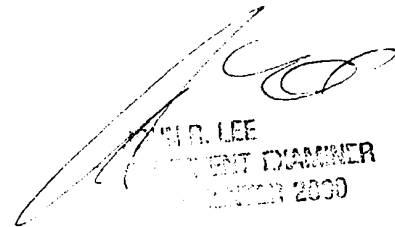
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the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (703) 308-4116.

Zia Hashmi

October 15, 2003.



JOHN R. LEE
SUPERVISOR
OCTOBER 2003